

PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Improvements in or relating to Discharge Pipe Connections for Toilet Bowls

I, FERDINAND KLEINHOF, of Dorpsstraat 57, Diepenveen, Holland, of Dutch nationality, do hereby declare the invention, for which I pray that a patent may be granted to me, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to means for connecting the discharge pipe of a toilet bowl with a waste pipe.

In the conventional floor connections for toilet bowls, use is generally made of a leaden sleeve, in which the discharge pipe of the toilet bowl is inserted. A gasketing substance, such as hemp impregnated with bitumen, is applied between the inner surface of the sleeve and the outer surface of the discharge pipe. The top end of the sleeve is subjected on the spot to a deformation so as to obtain a flange to be supported by the floor. A peripheral base flange of the discharge pipe is placed upon said flange of the sleeve. The lower end of the sleeve is inserted in the enlarged end of the waste pipe, and the space between the inner surface of the same and the outer surface of the sleeve is filled with a gasketing substance, such as minium and tar.

This conventional floor connection is expensive, not only on account of the relatively high costs of the leaden sleeve, but also because several complicated operations have to be performed on the spot by a skilled plumber.

It is an object of the present invention to remove this disadvantage, and to provide a satisfactory floor connection for toilet bowls which makes use of inexpensive parts and may be assembled with a minimum of labour.

The invention accordingly consists in means for connecting the discharge pipe of a toilet bowl with a waste pipe, characterised by an at least partially conical sleeve made of an elastic synthetic resin, such as polyethylene,

adapted to enclose the discharge pipe with its wide end, adapted to have the narrow end thereof inserted in the waste pipe.

For toilet bowls provided with a central discharge pipe and with a base flange on said discharge pipe, use is preferably made of a conical sleeve having a peripheral flange with a depending edge at its wide end, the said peripheral flange being adapted to be immediately supported by the floor, and to support the base flange of the discharge pipe. In order to allow this sleeve to be used in combination with discharge pipes of varying diameter, an inwardly directed flange may be secured to the top end of the sleeve, this flange being adapted to enclose the discharge pipe.

For toilet bowls provided with a lateral discharge pipe, it is preferred to use a sleeve provided at its wide end with an inwardly directed flange adapted to enclose the discharge pipe, and at its narrow end with an outwardly directed flange adapted to engage the inner surface of the waste pipe. The sleeve may comprise two cylindrical sections and an intermediate conical section. A resilient skirt may be secured to the outer surface of the sleeve in order to cover the end of the waste pipe.

The invention will now be further explained, by way of example only, with reference to the accompanying drawing, in which:—

Fig. 1 shows a longitudinal section of a floor connection according to the invention for toilet bowls having a central discharge pipe.

Fig. 2 shows a longitudinal section of a modification of the sleeve used in the connection of Fig. 1.

Fig. 3 shows, partially in elevation, and partially in a longitudinal section, a connection according to the invention for toilet bowls having a lateral discharge pipe.

Fig. 4 is an enlarged view of a part of the connection shown in Fig. 3.

Fig. 5 shows a longitudinal section of a modification of the sleeve used in the connection of Figs. 3 and 4.

Referring now to Fig. 1, the central discharge pipe 1 of a toilet bowl has a base flange 2. A conical sleeve 3, made of an elastic synthetic resin, such as polyethylene, is provided at its wide end with a peripheral flange 4, having a depending edge 5. The flange 4 with its depending edge 5 is immediately supported by the floor 6. The narrow end of the sleeve 3 extends into a waste pipe 7, of which the top edge lies at the same level as the floor 6.

In assembling the connection, the toilet bowl is inserted with its discharge pipe 1 into the wide end of the conical sleeve 3, whereby a tight joint between the discharge pipe and the sleeve is obtained due to the elastic properties of the sleeve. In the final position of the toilet bowl, the base flange 2 exerts a pressure on the peripheral flange 4 of the sleeve, whereby the required joint with the floor 6 is obtained. If the flange 4 were completely flat, the tightness of the joint with the floor might be destroyed by an uneven surface of the floor. Due to the depending edge 5, however, a tight joint is effected under any circumstances. It has been found in practice that no leakage occurs even when the waste pipe is completely clogged up.

The height of the conical sleeve 3 may preferably be 4 inches, while the inner diameter may amount to 4 inches at the narrow end and to 4.4 inches at the wide end. The flange 4 may have a width of about 1 inch, and the thickness of the wall of the sleeve may be about 0.08 inches.

In contrast with the conventional floor connections, the waste pipe 7 need not be provided with an enlarged end. Although a wooden floor has been shown in Fig. 1, the connection may also be used with a concrete floor.

In the modification of the sleeve 3 shown in Fig. 2, an inwardly directed flange 8 is provided at the top end of the sleeve. This flange is adapted to enclose a discharge pipe having a smaller diameter than the top end of the sleeve with a sufficient resiliency to obtain a tight joint between the discharge pipe and the sleeve. Thus, it will be seen that the flange 8 allows for the use of the sleeve in combination with discharge pipes of varying diameter. The flange 8 may be secured to the sleeve by a heat sealing procedure. It is also possible, however, to attach the flange 8 to a separate annular disc having a depending edge, which is placed on the flange 4 so as to grip with its depending edge around the edge 5.

In Figs. 3 and 4, the lateral discharge

pipe of a toilet bowl is indicated at 9. Fig. 3 shows how this discharge pipe is connected with the bowl 10. A sleeve 11, consisting of two cylindrical sections and an intermediate conical section 12, and made of an elastic synthetic resin, such as polyethylene, is provided with an inwardly directed flange 13 at its wide top end, and with an outwardly directed flange 14 at its narrow lower end.

In assembling the connection, the sleeve 11 is first inserted with its narrow end in the waste pipe 7, so that the conical section 12 lies against the top edge of the waste pipe.

The flange 14 impinges against the inner surface of the waste pipe so as to form a tight joint between the sleeve and the waste pipe. The discharge pipe 9 is now inserted in the wide end of the sleeve, in such manner that the thickened end 15 of the discharge pipe is pushed through the opening of the flange 13. The flange 13 impinges against the outer surface of the discharge pipe 9 so as to form a tight joint between the discharge pipe and the sleeve. The assembly only takes a few minutes.

In the modification of the sleeve 11 shown in Fig. 5, a resilient skirt 16 is attached to the sleeve at the border line between the upper cylindrical section and the conical section. The skirt 16 serves to cover the top edge of the waste pipe, and is particularly useful in cases where the top edge of the waste pipe extends above the floor surface, which would otherwise lead to an untidy appearance.

WHAT I CLAIM IS:—

1. Means for connecting the discharge pipe of a toilet bowl with a waste pipe, characterised by an at least partially conical sleeve made of an elastic synthetic resin, such as polyethylene adapted to enclose the discharge pipe with its wide end, adapted to have the narrow end thereof inserted in the waste pipe.

2. Means as claimed in Claim 1 for toilet bowls provided with a central discharge pipe and with a base flange on said discharge pipe, characterised by a conical sleeve having a peripheral flange with a depending edge at its wide end, the said peripheral flange being adapted to be immediately supported by the floor, and to support the base flange of the discharge pipe.

3. Means as claimed in Claim 2, characterised by an inwardly directed flange secured to the top end of the sleeve and adapted to enclose the discharge pipe.

4. Means as claimed in Claim 1 for toilet bowls provided with a lateral discharge pipe, characterised by a sleeve provided at its wide end with an inwardly directed flange adapted to enclose the discharge pipe, and at its narrow end with an outwardly directed flange adapted to engage the inner surface of the waste pipe.

5. Means as claimed in Claim 4, characterised in that the sleeve comprises two cylindrical sections and an intermediate conical section. 20
- 5 6. Means as claimed in Claim 4 or 5, characterised in that the sleeve comprises a resilient skirt secured to its outer surface and adapted to cover the end of the waste pipe. 25
- 10 7. A sleeve for connecting the discharge pipe of a toilet bowl with a waste pipe, made of an elastic synthetic resin, such as polyethylene, having a conical shape, and provided with a peripheral flange with a depending edge at its wide end. 30
- 15 8. A sleeve for connecting the discharge pipe of a toilet bowl with a waste pipe, made of an elastic synthetic resin, such as polyethylene, and comprising two cylindrical sections, an intermediate conical section, an inwardly directed flange at its wide end, and an outwardly directed flange at its narrow end.
9. A sleeve as claimed in Claim 8, characterised by a resilient skirt secured to its outer surface at the borderline between the wide cylindrical section and the conical section.
10. Means for connecting the discharge pipe of a toilet bowl with a waste pipe, substantially as described with reference to the accompanying drawing.

MARKS & CLERK.

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COMPLETE SPECIFICATION

1 SHEET

This drawing is a reproduction of
the Original on a reduced scale

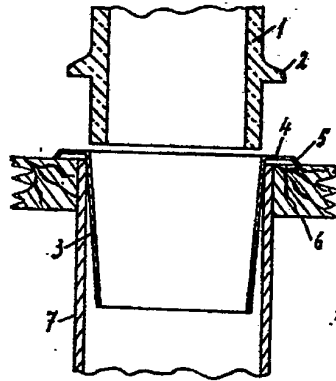


Fig. 1

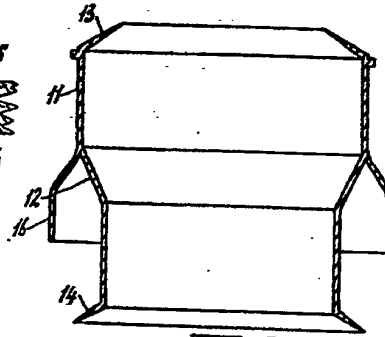


Fig. 5

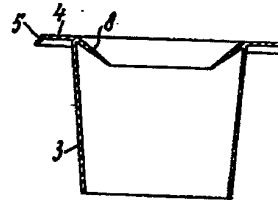


Fig. 2

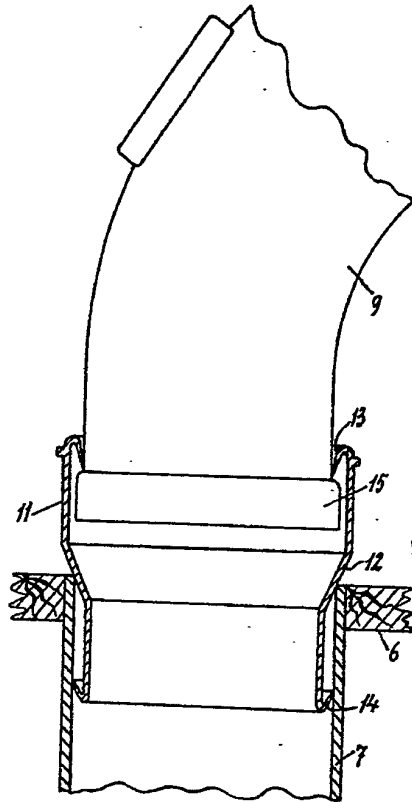


Fig. 4

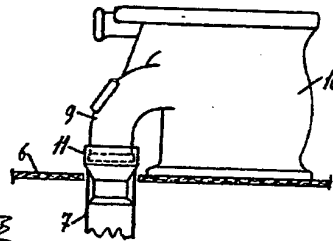


Fig. 3